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AUTHOR Furney, Steven
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ABSTRACT

Athletic coaches (n=149) responded to a survey questionnaire on two cardiac and respiratory emergency procedures: cardiopulmonary resuscitation (CPR) and the Heimlich maneuver. The coaches were asked to indicate how proficient they were at these skills, how important these skills were to their job, the availability and the need for in-service instruction and continuing education in cardiac and respiratory emergency procedures, along with their willingness to participate in continuing education instruction in CPR and the Heimlich maneuver if available. While the results of this study indicate that the athletic coach is well prepared to deal with cardiac and respiratory emergency procedures, emphasis should be continued on proper training techniques for these emergency skills. (JD)

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RESPIRATORY AND CARDIAC RESUSCITATION SKILLS OF THE HIGH SCHOOL ATHLETIC COACH

Steven Furney

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RESPIRATORY AND CARDIAC RESUSCITATION SKILLS OF THE HIGH SCHOOL ATHLETIC COACH

Respiratory and cardiac emergency procedures such as cardiopulmonary resuscitation and the Heimlich maneuver have been shown to save lives (1,2,3,4,5). But these life saving procedures can only be effective if the user is well trained and proficient at the task. Proficiency in emergency care procedures such as cardiopulmonary resuscitation (CPR) or the Heimlich maneuver for obstructed airway is not a prerequisite for entrance into the coaching profession. However, the athletic coach is often looked upon as a resource person for first aid and emergency care. Due to their association with physical education, sport, or athletics, the coach is frequently assumed to be well versed in various forms of emergency care procedures.

The purpose of this report is to examine high school athletic coaches with regard to respiratory and cardiac emergency procedures. It sought to determine how important athletic coaches felt cardiopulmonary resuscitation and the Heimlich maneuver were to their jobs, how proficient they were at the skills, and how frequently these life saving techniques had been used.

Methods

A survey instrument was mailed to the coaching staff of 271 high schools in the State of Texas. This instrument was sent along with a cover letter and stamped self-addressed envelope. The participants represented school districts ranging in size from 1A (1-123 students) to 5A (1303 students or more).

Questions the coaches were asked included: how many on staff know CPR and the Heimlich maneuver, has anyone had to use either of these procedures for a respiratory or cardiac emergency, does the school district offer in-service training for CPR or the Heimlich maneuver, how important is the knowledge of

these skills to their job, would they participate in training sessions if made available, and which of the two procedures did they feel was most important.

Regarding the question which asks how many coaches know CPR, the subjects responded based on the American Heart Association Cardiopulmonary Resuscitation and Emergency Cardiac Care certification in basic life support or the American Red Cross Basic Life Support Course in Cardiopulmonary Resuscitation. While there is no formal certification process for the Heimlich maneuver (airway obstruction), the procedure is included in the AHA and ARC certifications described above. Data were reported in percentages rather than raw scores and broken down according to the size of the school district.

Results

Of the 271 coaching staffs surveyed, 155 returned the survey instrument. This represented a response rate of 57%. Of the 155 returned questionnaires, 6 had to be eliminated from the study because they were incomplete or illegibly written. This left a total of 149 survey instruments from which data were taken. Of the total questionnaires returned, 27.1% came from schools classified 5A (1303 students or more), 20.3% from schools classified 4A (649 to 1302 students), 24.3% from class 3A schools (275 to 648 students), 16.9% from class 2A schools (124 to 274 students) and 11.4% from schools classified 1A (1 to 133 students).

Regarding the actual number of subjects involved with the study, 708 coaches were from 5A schools, 456 from 4A schools, 390 from 3A schools, 151 from 2A schools, and 68 from 1A schools. This resulted in a total of 1773 subjects involved with the study.

Table 1 indicates the percentage of coaches who reported that they knew CPR and the Heimlich maneuver. All size categories reported at least 50% positive on knowing these skills, however, the largest sized schools had the lowest figure of the five categories. With CPR, the 5A and 4A schools averaged 51% positive

response to knowing the skill while the 2A and 1A schools averaged 59.5% positive response. With the Heimlich maneuver, the difference was even more noticeable with the 5A and 4A schools averaging 58% positive response and the 2A and 1A schools averaging 72.3% positive response. With the exception of coaches in the smallest size category (1A), all of the size groupings reported a higher percentage of knowing the Heimlich maneuver over knowing CPR.

The incidence of school in-service instruction for CPR and the Heimlich maneuver is provided in Table 2. For both skills the highest incidence of in-service instruction was seen in the two largest size classifications (5A and 4A) and the smallest size classification (1A). The middle size classification (3A) reported the least amount of in-service instruction for both skills. When asked, however, if there was a need for continuing education in respiratory and cardiac resuscitation skills, the subjects gave a very strong positive response. As Table 3 indicates, there was a somewhat stronger positive response for the need of continuing education in CPR than in airway obstruction.

While the subjects were very strong in their opinion regarding the need for continuing education, they were not quite so supportive when it came to their own participation in continuing education. Table 4 illustrates how the coaches responded when asked if they would attend continuing education on CPR and airway obstruction if it were available. For CPR the percentage which indicated they would not attend continuing education if it were available ranged from a low of 10.0% to a high of 35.3%. For the Heimlich maneuver the percentage which indicated they would not attend continuing education ranged from a low of 10% to a high of 33.3%.

The point was made earlier in this article that there is no formal requirement for an athletic coach to have proficiency in respiratory or cardiac resuscitation skills. However, when the coaches in this study were asked if

knowledge in CPR or airway obstruction procedures was important to their job, the result was an overwhelming "yes". Table 5 indicates that the coaches in all size classifications felt that the knowledge of both skills was important to their job.

When coaches were asked if they had ever used CPR or the Heimlich maneuver for a respiratory or cardiac emergency, the results proved to be very interesting. Of the 1773 subjects involved with this study, CPR had been used only three times on an athlete during a practice or game. One subject reported using CPR on a student during a physical education class. One subject reported using CPR on a faculty member during the school day. CPR was seen to be used three times on spectators at an athletic event, and four coaches reported using CPR in situations outside of the school setting. The Heimlich maneuver was found to be used only two times on an athlete during a practice or game. One subject reported using the Heimlich maneuver on a student during a physical education class, and one subject reported using the skill on a student at the school cafeteria. One subject reported using the Heimlich maneuver on a student aboard a school bus in route to an athletic event, while seven subjects reported using the Heimlich maneuver in situations outside of the school setting.

Finally the subjects in this study were asked which of the two rescue skills they perceived as the most important. As Table 6 indicates, the knowledge of CPR is clearly seen to be more important than knowledge of the Heimlich maneuver to the coaches in this study.

Discussion

From the results of this study it would appear that athletic coaches are fairly well prepared to deal with cardiac and airway obstruction emergencies. This may be partially the result of formal in-service instruction offered by the school system. CPR and airway obstruction in-service is provided in over half of

the larger schools (5A and 4A), although not seen as frequently in the smaller schools. Coaches in this study were very positive in their support for continuing education on respiratory and cardiac resuscitation skills. However, the coaches were not as positive when asked if they would actually attend continuing education on CPR and airway obstruction if made available. Perhaps the coaches saw themselves as already certified and confident in their skills, therefore the continuing education would be needed for other persons (non-athletic coaches, staff, etc.). In any case, the athletic coaches in this study were unanimous in their perception that the knowledge of CPR and the Heimlich maneuver was important to their job. This may be related to the concept of "in loco parentis" (in place of a parent), where school personnel are expected to provide a safe environment and establish reasonable behavior for the protection of students. The teacher/coach is considered to be an expert on the nature of children, they are licensed by their state to offer their service as a professional, therefore the expectation for protection is above that of the ordinary citizen.

Even with the high level of proficiency in respiratory and cardiac resuscitation skills seen in the athletic coaches participating in this study, the actual use of the skill in an emergency situation was rare. Of the 1773 subjects in the study, only 24 had ever used CPR or the Heimlich maneuver in a true emergency. It should be remembered, however, that if even one life is saved due to the knowledge of these emergency skills, then the time and energy put into the training for these skills is well worth the effort. It is interesting to note that of the coaches reporting to have used CPR or the Heimlich maneuver in a true emergency, the majority of these cases occurred in situations outside of the school setting.

Summary

We examined the high school athletic coach with regard to cardiac and respiratory emergency procedures. Coaches were asked to indicate how proficient they were at these skills, how important these skills were to their job, the availability and the need for in-service intruction and continuing education in cardiac and respiratory emergency procedures, along with their willingness to participate in continuing education instruction in CPR and the Heimlich maneuver if available. While the results of this study indicate that the athletic coach is well prepared to deal with cardiac and respiratory emergency procedures, emphasis should be continued on proper training techniques for these emergency skills.

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TABLE 1

PERCENTAGE OF COACHES WHO KNOW CPR

AND THE HEIMLICH MANEUVER

	CPR	Heimlich Maneuver
5A	50.1%	59.6%
4A	51.9%	56.4%
3A	58.9%	73.8%
2A	52.9%	81.5%
1A	66.2%	63.2%
	53.4%	63.9%

TABLE 2

PERCENTAGE OF SCHOOL IN-SERVICE FOR CPR

AND AIRWAY OBSTRUCTION

	CPR		Airway Obstruction	
	Yes	No	Yes	No
5A	60.0%	40.0%	59.1%	40.9%
4A	53.3%	46.7%	53.6%	46.4%
3A	34.3%	65.7%	37.1%	62.9%
2A	36.0%	64.0%	40.9%	59.1%
1A	58.8%	41.2%	47.1%	52.9%

TABLE 3

NEEDS ASSESSMENT FOR CONTINUING EDUCATION FOR

RESPIRATORY AND CARDIAC RESUSCITATION SKILLS

	Need for Continuing Education on CPR		Need for Continuing Education on Airway Obstruction	
	Yes	No	Yes	No
5A	100%	0.0%	97.5%	2.5%
4A	96.7%	3.3%	93.3%	6.7%
3A	97.1%	2.9%	94.2%	5.8%
2A	100%	0.0%	88.0%	12.0%
1A	100%	0.0%	93.7%	6.3%

TABLE 4

WOULD STAFF GO TO CONTINUING EDUCATION ON CPR AND AIRWAY OBSTRUCTION TECHNIQUE IF AVAILABLE

	CPR		Airway Obstruction	
	Yes	No	Yes	No
5A	87.5%	12.5%	85.0%	15.0%
4A	90.0%	10.0%	90.0%	10.0%
3A	72.2%	27.8%	66.7%	33.3%
2A	72.0%	28.0%	76.0%	24.0%
1A	64.7%	35.3%	76.5%	23.5%

TABLE 5

IS KNOWLEDGE OF CPR AND AIRWAY OBSTRUCTION PROCEDURES IMPORTANT TO YOUR JOB

	CPR		Airway Obstruction	
	Yes	No	Yes	No
5A	95.0%	5.0%	87.5%	12.5%
4A	100%	0.0%	96.7%	3.3%
3A	100%	0.0%	100%	0.0%
2A	95.2%	4.8%	95.8%	4.2%
1A	100%	0.0%	100%	0.0%

TABLE 6

WHICH SKILL IS SEEN AS THE MOST IMPORTANT

Knowledge of CPR	Knowledge of Heimlich Maneuver
5A -- 83.9%	5A -- 16.1%
4A -- 85.7%	4A -- 14.3%
3A -- 79.3%	3A -- 20.7%
2A -- 77.8%	2A -- 22.2%
1A -- 86.6%	1A -- 13.4%